

1 Claims:

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~~1.~~ A burner for fabricating aerosol doped waveguides,
the burner including:

5 a plurality of inlet ports each connected to a
6 respective torch conduit, said torch conduit connecting
7 its respective inlet port to a gas mixing region; and
8 including a gas expansion chamber provided for at least
9 one of said inlet ports upstream of said gas mixing
10 region.

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12 2. A burner as claimed in Claim 1, wherein the gas
13 expansion chamber is in the form of a reservoir
14 chamber.

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16 3. A burner as claimed in either preceding claim,
17 wherein the gas expansion chamber is located at the
18 junction of an inlet port and the respective torch
19 conduit.

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21 4. A burner as claimed in Claim 1 or 2, wherein the
22 gas expansion chamber is located upstream of the
23 junction between the inlet port and the respective
24 torch conduit.

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26 5. A burner as claimed in Claim 1 or 2, wherein the
27 gas expansion chamber is located downstream of the
28 junction between the inlet port and the respective
29 torch conduit.

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6. A burner as claimed in any preceding claim,
wherein said inlet ports feed oxygen, hydrogen,
waveguide deposition material carried by a carrier gas,
and aerosol droplets of a dopant ion solution carried
by a carrier gas to the said burner.

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1 7. A burner as claimed in Claim 6, wherein the
2 hydrogen port is located downstream of the waveguide
3 deposition material inlet port.
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Sub a²
5 8. A burner as claimed in Claim 6 or 7, wherein the
6 aerosol inlet port is located downstream of the
7 hydrogen inlet port.
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9 9. A burner as claimed in any one of Claims 6 to 8,
10 wherein the oxygen inlet port is located downstream of
11 the aerosol inlet port.
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13 10. A burner as claimed in any preceding claim,
14 wherein said at least one inlet port is located in a
15 radial plane with respect to a longitudinal axis of the
16 burner which differs from a radial plane containing
17 said other inlet ports.
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19 11. A burner as claimed in Claim 10, wherein said at
20 least one inlet port is located in a plane orientated
21 at 180° to the radial plane of the other inlet ports.
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Sub a³
23 12. A burner as claimed in any preceding claim,
24 wherein said at least one inlet port is orientated at a
25 first angle with respect to the burner axis, and
26 wherein the other inlet ports are orientated at a
27 second angle with respect to the burner axis, said
28 first angle being less than said second angle.
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30 13. A burner as claimed in Claim 12, wherein said
31 first angle lies in the range 5° to 45°.
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Sub a⁴
33 14. A burner as claimed in Claim 13, wherein said
34 first angle lies in the range 5° to 25°.
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